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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/773,989	02/06/2004	Robert K. Barr	52183	7098

7590 07/12/2006

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EXAMINER	
JOHNSON, CONNIE P	
ART UNIT	**PAPER NUMBER**
1752	

DATE MAILED: 07/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/773,989	BARR ET AL.	
	Examiner	Art Unit	
	Connie P. Johnson	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment, declaration and remarks filed April 27, 2006 have been entered and fully considered.

2. Claims 1-2 and 4-15 are presented.

   a. Claims 1, 4, 5 and 8 are amended.

   b. Claims 11-15 are new claims.

3. The 103(a) rejections for claims 1, 2 and 4-10 are withdrawn.

4. The amendment to claim 8 to answer an objection from the previous office action has been considered and entered.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tefler et al., U.S. Patent No. 5,681,676 in view of Kuchta, U.S. Patent No. 5,112,721 and further in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1.

Tefler teaches a method of applying an imaging composition comprising a sensitizer to a substrate (workpiece) and projecting a 3-D image onto the imaging composition so as to affect a color change in the imaging composition. The difference between the Tefler reference and the application is that Tefler does not necessarily use a cyclopentanone based conjugated sensitizer in his method. However, Kuchta in analogous art, teaches a cyclopentanone based conjugated sensitizer used in imaging compositions. Sensitizers are known as dyes and provide color in imaging compositions (See Kuchta, column 1, lines 27-30). Tefler teaches the use of several different types of dyes suitable for the invention including dyes, which can undergo a change in color upon increase in temperature. Kuchta's compounds fit this description. It would have been obvious to one of ordinary skill in the art to use the compounds of Kuchta in the method of Tefler because Tefler's process requires dyes, which are radiation sensitive, and undergo color change with an increase of temperature. Tefler nor Weed teach reducing agents in an imaging composition. However Weed, in analogous art, teaches a composition comprising photosensitizing dyes that undergo color change upon irradiation (Weed, [page 7, 0099]) combined with other components such as a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine. The combination of these components forms an effective color forming composition when exposed to radiation. It would have been obvious to one of ordinary skill in the art to combine the redox couple of Weed with the cyclopentanone based sensitizer of Kuchta and use the combination in Tefler because Tefler teaches

that his process for making 3D images require color forming compositions. These color forming compositions are radiation sensitive.

7. Claims 11, 12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tefler et al., U.S. Patent No. 5,681,676 in view of Kangas et al., U.S. Patent no. 5,563,023.

Tefler teaches a method of applying an imaging composition comprising a sensitizer to a substrate (workpiece) and projecting a 3-D image onto the imaging composition, including a sensitizer, so as to affect a color change in the imaging composition. The imaging composition is imagewise exposed using a laser (col. 10, line 52). Tefler does not teach an adhesive layer on the opposite side of the support. However, Kangas teaches making photoimageable elements having a photosensitive composition (imaging composition) on a substrate which has an adhesive applied to the opposite side (see Kangas' claim 9 and column 2, lines 8-12). It would have been obvious to one of ordinary skill in the art to use an adhesive on the opposite side of the substrate with releasing ability in order to place the image on additional workpiece if required.

8. Claims 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tefler et al., U.S. Patent No. 5,681,676 in view of Kangas et al., U.S. Patent No. 5,563,023 as applied to claims 11 and 12 above, and further in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1.

that his process for making 3D images require color forming compositions. These color forming compositions are radiation sensitive.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tefler et al., U.S. Patent No. 5,681,676 in view of Kangas et al., U.S. Patent no. 5,563,023.

Tefler teaches a method of applying an imaging composition comprising a sensitizer to a substrate (workpiece) and projecting a 3-D image onto the imaging composition, including a sensitizer, so as to affect a color change in the imaging composition. The imaging composition is imagewise exposed using a laser (col. 10, line 52). Tefler does not teach an adhesive layer on the opposite side of the support. However, Kangas teaches making photoimageable elements having a photosensitive composition (imaging composition) on a substrate which has an adhesive applied to the opposite side (see Kangas' claim 9 and column 2, lines 8-12). It would have been obvious to one of ordinary skill in the art to use an adhesive on the opposite side of the substrate with releasing ability in order to place the image on additional workpiece if required.

8. Claims 11, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tefler et al., U.S. Patent No. 5,681,676 in view of Kangas et al., U.S. Patent No. 5,563,023 as applied to claims 11 and 12 above, and further in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1.

Tefler teaches a method of applying an imaging composition comprising a sensitizer to a substrate (workpiece) and projecting a 3-D image onto the imaging composition so as to affect a color change in the imaging composition. Kangas teaches polymer film supports (substrates) with an adhesive on the opposite side of the support (substrate). The combination of Tefler nor Kangas teach reducing agents, such as quinones and acyl esters of triethanolamines in the imaging composition. However Weed, in analogous art, teaches a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine as an effective color forming composition [Weed, 0090]. It would have been obvious to one of ordinary skill in the art to use the redox couple of Weed in the method of Tefler because Tefler teaches color-forming compositions, while Weed teaches reducing agents that provide sufficient color or shade change in photopolymerizable compositions.

9. Claims 5-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaufman, U.S. Patent No. 6,547,397 B1 in view of Tefler, U.S. Patent No. 5,681,676, further view of Kuchta, U.S. Patent No. 5,112,721 and further in view of Weed et al., U.S. Patent Publication No. 2002/0064728 A1.

Kaufmann teaches a 3-D imaging method comprising applying an imaging composition to a work piece, providing a 3-D imaging system, measuring the distance between the projector and a sensor in the workpiece, positioning the workpiece and applying energy to the imaging composition to affect a color change. Figure 1 of Kaufman is the same as figure 1 of the application. The range finding system determines the distance between the projector and a sensor as described in column 8.

The optical signal is converted to a digital signal and analyzed by the controller module, element 210, which is the same as applying an algorithm to the results (col. 8, lines 65-67 and col. 9, lines 1-30). As shown in Figure 1, Kaufman teaches the energy beams from the projector fall on sensors and on an internal triangular shape of the workpiece which is not identified in Figure 1. However, because the energy beams fall on this area, it would have been obvious to one of ordinary skill in the art that this is the area to be imaged and must have an imaging composition thereon. Kaufman does not teach applying an imaging composition to a workpiece and applying the 3D imaging composition having a cyclopentanone based compound with an amount of energy to affect color change. Tefler teaches applicant's process of imaging 3D compositions using a laser. It would have been obvious to use the process of Tefler in the method of Kaufman because Tefler merely specifies the imaging process while Kaufmann outlines the manner in which the process is used in the laser system for projecting a 3D image. The amounts of power the system projects and the amount of energy are at conventional levels. By applicant's own admission, generally, more than 5mW of power for the laser is not used because this is known to present hazards to workers. (instant specification, page 3). The amount of energy is directly related to the amount of power used by the projection system and so can be optimized. Tefler further teaches a support, generally a polymeric film, with UV screening layers applied on both sides of the support with an adhesive (col. 12, lines 46-49 and col. 14, lines 1-12). Kuchta, in analogous art, teaches cyclopentanone based photosensitizers in a photopolymerizable composition (see Kuchta, col. 5, line 66). It would have been obvious to one of ordinary

skill in the art to use the compound of Kuchta in the process of Tefler because Tefler's process requires a radiation-sensitive compound, which affects color change upon increase in temperature. Kaufman, Tefler nor Kuchta teach specific reducing agents as claimed. However, Weed teaches a quinone redox couple comprising 9,10-phenanthrenequinone and an acyl ester of triethanolamine as an effective color-forming composition (Weed, [0090]). It would have been obvious to one of ordinary skill in the art to use the redox couple of Weed in the method of Tefler because Tefler teaches color-forming compositions, while Weed teaches reducing agents that provide sufficient color or shade change in photopolymerizable compositions.

Response to Arguments

10. Applicant's arguments, see page 4, filed 04/27/2006, with respect to the rejections of claims 1, 2 and 4-10 under 103(a) have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, new ground(s) of rejection are made herein.

a. With regards to the 103(a) rejection over Tefler in view of Kuchta, the combination of the references appropriately shows claims 1, 2 and 4 as unpatentable because Tefler teaches a method of applying a color-forming composition to produce a 3-D composition on a workpiece (Tefler, col. 3, lines 20-60) and Kuchta teaches the specific cyclopentanone sensitizers as applied in the imaging compositions (Kuchta, col. 6, lines 5-19).

b. Applicant cites paragraph 5 of the previous office action wherein Tefler "does teach" cyclopentanone based conjugated sensitizers. Tefler does not

necessarily use a cyclopentanone based conjugated sensitizer. However, as a matter of record, the same paragraph also clearly states that Kuchta does teach cyclopentanone sensitizers. In view of the new rejection under 103(a) over Kaufman in view of Tefler and Kuchta, it would have been obvious to combine the references because Kaufman teaches a 3-D imaging system and method of applying an imaging composition to a workpiece.

c. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Tefler and Kaufman teach 3-D imaging compositions comprising sensitizers. Kuchta teaches sensitizers in imaging.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1752

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